

Listing of Claims

1. (Original) A method for forming an elongated fused quartz article comprising the steps of:
 - a) feeding a generally quartz (SiO_2) material into a furnace;
 - b) fusing the quartz (SiO_2) material in a melting zone of the furnace under a gas atmosphere comprising a molecular deuterium (D_2) gas;
 - c) drawing the article from the furnace; and
 - d) optionally, baking the article in a gas atmosphere comprising a deuterium gas.
2. (Original) The method of claim 1 further comprising the step of heat treating the article drawn from the furnace in a substantially hydrogen-free gas atmosphere or vacuum.
3. (Original) The method of claim 1 wherein the gas atmosphere of steps b) or d) further comprises an inert gas or a mixture of inert gases.
4. (Original) The method of claim 3 wherein the D_2 gas and inert gas or mixture of inert gases are present in a volume ratio of about 20% D_2 and about 10% inert gas or mixture of inert gases.
5. (Original) The method of claim 3 wherein the D_2 gas and inert gas or mixture of inert gases are present in a volume ratio of about 90% D_2 and about 10% inert gas or mixture of inert gases.
6. (Original) The method of claim 3 wherein the dew point of the gas atmosphere of step b) is about -30°C . to about 80°C .
7. (Original) The method of claim 3 wherein the dew point of the gas atmosphere of step b) is about -20°C . to about 10°C .
8. (Original) The method of claim 1 being a continuous process.
9. (Original) The method of claim 1 wherein the article is a deposition tube.
10. (Original) The method of claim 1 wherein the article is a sleeve tube.

11. (Original) The method of claim 9 wherein the deposition tube has a hydrogen content of about 5×10^{-11} mol/g to about 5×10^{-8} mol/g.
12. (Original) The method of claim 1 wherein the baking is carried out at a temperature of about 200°C. to about 1500°C.
13. (Original) A method for forming an elongated fused quartz article comprising the steps of:
 - a) pretreating a generally quartz (SiO_2) material in a gas atmosphere comprising a molecular deuterium (D_2) gas;
 - b) feeding the pretreated quartz (SiO_2) material into a furnace;
 - c) fusing the pretreated quartz (SiO_2) material in a melting zone of the furnace under a gas atmosphere comprising a molecular deuterium (D_2) gas or a substantially hydrogen-free gas;
 - d) drawing the fused SiO_2 material article from the furnace to form the article; and
 - e) heat treating the drawn article in a substantially hydrogen-free gas atmosphere or vacuum.
14. (Original) The method of claim 13 being a continuous process.
15. (Original) The method of claim 13 wherein the article is a deposition tube.
16. (Original) The method of claim 13 wherein the article is a sleeve tube.
17. (Original) The method of claim 13 further comprising the step of :
 - e) baking the fused SiO_2 article in a gas atmosphere comprising a deuterium gas.
18. (Original) A method for forming a fused quartz article comprising the steps of:
 - a) providing a generally quartz (SiO_2) material; and
 - b) fusing the quartz (SiO_2) material in a gas atmosphere comprising a molecular deuterium (D_2) gas to form the quartz article.
19. (Original) The method of claim 18 wherein the gas atmosphere further comprises an inert gas or a mixture of inert gases.

20. (Original) The method of claim 18 further comprising the step of:
 - c) heat treating the fused SiO_2 article in a substantially hydrogen-free gas atmosphere.
21. (Original) The method of claim 20 wherein the heat treating is carried out at about 200°C . to about 1500°C .
22. (Original) The method of claim 18 wherein the article is a deposition tube.
23. (Original) The method of claim 18 wherein the article is a sleeve tube.
24. (New) An elongated fused quartz article formed by the method of claim 1.
25. (New) An elongated fused quartz article formed by the method of claim 13.
26. (New) An elongated fused quartz article formed by the method of claim 18.
27. (New) A method for forming an elongated fused quartz article comprising the steps of:
 - e) feeding a generally quartz (SiO_2) material into a furnace;
 - f) fusing the quartz (SiO_2) material in a melting zone of the furnace under a gas atmosphere comprising a molecular deuterium (D_2) gas;
 - g) drawing the article from the furnace; and
 - h) optionally, baking the article in a gas atmosphere comprising a deuterium gas.

wherein the gas atmosphere of steps b) or d) further comprises an inert gas or a mixture of inert gases and wherein the dew point of the gas atmosphere of step b) is about -30°C . to about 80°C .

28. (New) The method of claim 27, wherein the dew point of the gas atmosphere of step b) is about -20°C . to about 10°C .